ANIMAL LIFE IN LOESS DEPOSITS NEAR ALTON, ILLINOIS, WITH DESCRIPTIONS OF TWO NEW VARIETIES OF LAND SHELLS FROM THE SAME DEPOSITS.*

BY FRANK COLLINS BAKER.

Many years ago Worthen (Geol. Ill., Vol. I, p. 315, 1866) reported the remains of a mastodon from near the City of Alton, from a deposit near the bottom of the loess, about thirty feet beneath the surface, where it was separated from the limestone by two to three feet of local drift. It was also stated by Worthen that the loess above the drift contained land and fresh-water shells. The only other reference to this deposit or its animal life, as far as known to the writer, is by Wm. McAdams (Proc. A. A. A. S., Vol. XXXII, p. 268, 1883). Recently Dr. M. M. Leighton, of the Department of Geology, University of Illinois, and also connected with the State Geological Survey, visited Alton and vicinity, and made a careful study of the Quaternary deposits, to determine the stratographic horizon of the concretions with which the mammalian remains are associated. During his study of the loess deposits he collected from them at different specified levels the remains of molluscan life, and has given me the following statement concerning the character and age of these deposits.

"The bluffs just northwest of Alton have a height of from 125 to 175 feet above the Mississippi River. Several quarries are located along the bluffs, which offer fine sections of the Mississippian limestone, some 50 to 100 feet thick, overlain by thin drift and thick loess deposits.

"The loess is separable into two deposits, a lower pink loess and an upper buff loess. The pink loess lies unconformably on the glacial till below, the till showing strong evidence of a long interval of weathering before the deposition of the pink loess. The till may well be as old as the Kansan, in which case the pink loess is probably Sangamon; if the till is Illinoian the pink loess cannot be older than late Sangamon, and may be

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Iowan or early Peorian. Although the pink color of the loess is believed to be largely original, there is some evidence suggesting that the pink loess was weathered somewhat before the deposition of the overlying buff loess. The interval of weathering, however, was doubtless brief. The buff loess is leached and oxidized at the top similar to the early Peorian loess (formerly called Iowan), and this strengthens the view that the pink loess is Sangamon. The mammalin remains at the top of the till and the base of the pink loess seem most likely to be early Sangamon. The calcareous concretions with which they are associated are secondary and, hence, later."

The mollusks collected embrace thirteen species of land shells, including two that appear to be undescribed. No lacustrine or fluviatile species were obtained (as would be expected), these mollusks being very rare or absent in true loess formations. Worthen's statement of the presence of fresh-water shells may have referred to the genus *Succinea*, some species of which occur in the vicinity of water bodies, though the loess *Succinea* are of the upland species and not the lowland species that are abundant near water (*Succinea retusa*, for example). The species of land shells in the deposit are the same, for the most part, as those found in typical loess deposits in Iowa and adjacent states. Except where mentioned the species are normal in form.

The division of the loess into two bodies, differing in color and probably attesting different periods of deposition, indicates that the deposition of the loess has been periodic rather than continuous. This is in line with the findings of Dr. Wm. C. Alden and Dr. Leighton in regard to the loess associated with the Iowan drift sheet in Iowa.† The cause of these epochs of loess deposition with breaks between is still a matter of conjecture. It is the writer's opinion that it might represent the presence of the Iowan ice to the north of the region.

Dr. Leighton reports that shells were more or less common at all levels of the loess. The age of these molluscan remains may be tentatively indicated in the following table. It will be noted

† Alden, Wm. C., and Leighton, M. M. The Iowan Drift, Iowa Geological Survey, Vol. XXVI, pp. 49 to 212, 1917.

that the pink loess, believed to be of Sangamon age, is the richest in number of species, and that the characteristic post-Iowan (*Peorian*) fossil, *Pyramidula shimekii* occurs only in the buff loess. Whether this distribution is to be considered as applying to the whole body of the loesses of this area, or is simply the result of local collecting, cannot be known until more extensive collections are made. The collections made by Dr. Leighton are from several localities in both Madison and St. Clair counties and also from different levels in the deposits, and these are believed to represent fairly well the general distribution of the loess faunas of this region. It is probable that a larger number of the minute species could be found as a result of prolonged search carried on especially for them. The material has been placed in the University of Illinois Museum through the courtesy of the Illinois Geological Survey. They are numbered P 738 to P 764 of the collection of Palaeontology.

TABLE OF DISTRIBUTION OF LIFE IN LOESSES NEAR ALTON.

Concretionary horizon.	*Polygyra profunda pleistocenica.*
(Above underlying till, believed to be Kansan.)	*Castoroides ohioensis* (incisor tooth).
	Mammut americanum (Kerr). (Reported by Worthen.)
Yarmouth interval.	
Pink loess believed to be of Sangamon age.	*Polygyra profunda pleistocenica.*
	Polygyra multilineata altonensis.
	Polygyra hirsuta.
	Polygyra appressa.
	Pyramidula alternata.
	Helicodiscus paralellus.
	Gastrocopta armifera.
	Zonitoides arborea.
Upper part of loess.	*Circinaria concava.*
	Succinea ovalis.
	Helicina occulta.
Buff loess.	
Early Peorian interval.	*Pyramidula shimekii.*
	Succinea ovalis.

The localities at which shells were obtained, together with the species found at each, are listed below.

From the concretionary horizon at the base of the pink loess and at the top of the underlying till; plant number 2 of the Mississippi Lime and Materials Co., Alton, Madison Co.

Polygyra profunda pleistocenica Baker.

Castoroides ohioensis Foster. Given to Dr. Leighton and said to have come from this horizon. Only a single incisor tooth (the left) was collected.

The *Polygyra* was apparently very abundant at this horizon, seven pieces of concretions containing ten specimens of shells. The concretions are of lime which is very hard. Some of the shells are internal casts.

From the lower ten feet of the pink loess, plant No. 2 Mississippi Lime and Materials Co., Alton. Many fragments of shells occurred, indicating an abundance of the different species at one time.

Polygyra profunda pleistocenica Baker. A few specimens.
Polygyra multilineata altonensis Baker. A few specimens.
Polygyra hirsuta (Say). Rare.
Gastrocopta armifera (Say). One specimen.

From the upper part of the pink loess, plant No. 2 Mississippi Lime and Materials Co., Alton.

Polygyra profunda pleistocenica Baker. A few specimens.
Pyramidula alternata (Say). A few specimens.
Circinaria concava (Say). One specimen.
Succinea ovalis (Say). Several specimens.
Helicina occulta Say. One specimen.

From cliff of loess near corner Market and East 6th Street, Alton. From pink loess.

Polygyra profunda pleistocenica Baker. Common.
Polygyra multilineata altonensis Baker. One specimen.
Polygyra appressa (Say). Common.
Polygyra hirsuta (Say). Rare.
Pyramidula alternata (Say). Not common.
Helicodiscus paralellus (Say). One specimen.
Circinaria concava (Say). One specimen.

From pink loess at Edgemont, St. Clair Co., north side of interurban railway.

Polygyra profunda pleistocenica Baker. Rare.

Zonitoides arborea (Say). One specimen.

From lower part of buff loess at Edgemont, St. Clair Co., north side interurban railway.

Pyramidula shimekii (Pilsbry). A few very large specimens, one individual measuring 7.10 mm. in greatest diameter.

Succinea ovalis Say. The Succineas are apparently this species, although they exhibit some variation, especially in the height of the spire. They are not *grosvenorii*, which occurs in the loess deposits of Iowa.

Description of New Varieties.

Polygyra multilineata altonensis n. var.

Shell differing from typical *multilineata* in being larger, the whorls more gibbous, the spire more depressed, and the sutures between the later whorls more deeply impressed; the last whorl begins to rapidly descend on the previous whorl until the upper part of the outer lip rests against the periphery, instead of above this point, as in *multilineata;* the deflection of the upper part of the whorl toward the aperture is also more abrupt, and forms a distinct shoulder at this point; the reflected lip is much heavier as is also the umbilical callus; the spiral color bands and lines are apparently much less numerous than in typical *multilineata.*

Greatest diameter, 32; height, 19.5; aperture height, 14; breadth, 14 mm. Holotype. U. I. No. P. 740 A.

Greatest diameter, 28; height, 15.5; aperture height, 11; breadth, 12 mm. Paratype. U. I. No. P. 740 B.

Horizon: Lower ten feet of pink loess, plant No. 2 Mississippi Lime and Materials Co., Alton, Madison Co., Illinois.

This form of *multilineata* is so uniformly different from the usual form and size of this species that it seems to require a special designation. It probably occurs in other loess deposits. The greater size and gibbous-shaped whorls are sufficiently characteristic to cause its immediate recognition. This variety is apparently not common in these loess deposits, only four

specimens being obtained by Dr. Leighton. The type material is from the lower part of the pink loess. The variety does not occur (apparently) in the higher or later loess deposits of this region.

Polygyra profunda pleistocenica n. var.

Shell uniformly smaller than typical *profunda*, more solid, with slightly higher spire and proportionally smaller aperture and umbilicus; the color bands are developed in but two specimens of the 19 specimens examined, the majority of the individuals being unicolored.

Greatest diameter, 22; height, 14.7 mm. Holotype. U. I. No. P. 751 A.

Greatest diameter, 24; height, 14 mm. Paratype. U. I. No. P. 751 B.

Greatest diameter, 26; height, 14.7 mm. Paratype. U. I. No. P. 751 C.

This race or variety of *profunda* is the most common land shell in the loess of the vicinity of Alton. The characteristics noted above will easily distinguish it from typical *profunda*. This variety recalls *Polygyra profunda strontiana* Clapp (Ann. Carnegie Mus. X, p. 537, pl. xxxii, figs. 13–15, 1916), the sizes being about the same in the two forms. In *strontiana*, however, the spire is higher and the shell of different shape. *Pleistocenica* is not common in the lower deposits of the loess near Alton nor in the higher deposits. It reaches its greatest development near the middle of the pink loess, from which the greater number of specimens came.

From pink loess on cliff of loess, corner Market and East 6th Street, Alton, Madison Co., Illinois.

NOTE ON A PREOCCUPIED GENERIC NAME IN CEPHALOPODS.

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In 1913 (Zool. Anz., Bd. 42, p. 590) I proposed the name *Acroteuthis* as that of a genus of cephalopods having the *Sepia media* Linnæus 1767 as type, the said genus being